

Family Cheilodactylidae

Body compressed, oblong ovate. Eyes lateral. Mouth small, terminal, protractile. Lips thick, fleshy. Maxillary exposed, without supplementary maxillary. Teeth villiform on jaws, none on vomer or palatines. Preopercle entire. Gill membranes united, free from isthmus. Gills 4, slit behind fourth. Pseudobranchiae present. Air bladder large, with many lobes. Pyloric caeca few. Scales moderate, cycloid. Lateral line continuous, complete. One dorsal fin, spinous portion well developed, with 16 to 19 spines and 23 to 33 rays. Anal spines 3. Caudal free.

1329
therefore quite evident that both Günther
and Day did not have Schneider's fish.

forked. Pectoral with lower
5 to 7 rays free. Ventral
well behind base of
pectoral.

Carnivorous fishes - of
South Africa, Tristan d'Aun-
ha, southern South America,
St. Paul Island, and the
tropical Pacific to Japan,
China and Australasia.
Eggs and spawning habits
unknown.

321

Genus Sciaenoides Richardson

Sciaenoides Richardson, Rep.
Brit. Assoc. Adv. Sci., pp. 18, 19,
1842 (1843). (Type Sciaenoides
abdominalis Richardson = Cichla
macroptera Schneider.)

Dactylopagrus Gill, Proc. Acad.
Nat. Sci. Philadelphia, vol. 14,
p. 114, May 1862. ^{Atypic.} (Type Dactylo-
Cheilodactylus carponemus
Cuvier, designated by Jordan,
Genera of Fishes, pt. 3, p. 313,
1919.)

Dactylosparus Gill, Proc. Acad.
Nat. Sci. Philadelphia, vol. 14,
p. 117, May 1862. (Type Cheilo-
dactylus carponemus Cuvier,
orthotypic.)

Body highest and arched above ventrals, convex behind, and with very slender caudal peduncle. Head moderate, crown arched, profile much decurved. Eye impinging on upper profile, nearer nape than snout. Mouth moderate. Villiform teeth in each jaw, preceded by row of larger conical ones. Preorbital bone very high. Branchiostegals 6. Preopercle vertical behind, angle broadly rounded. Scales of moderate size. Cheek scaly. First and second dorsal nearly equally long and high, former convex medially and scarcely lower than second fin behind, with 17 spines. Anal oblong, with 3 moderate

spines, soft rays subequal.
 Pectoral with 1 of its simply
 articulated rays much produced.

Analysis of Species

- a.¹ A dark nuchal band from
 back to shoulder. macropterus.
- a.² No dark nuchal band.
morwong.

324

Sciaenoides
~~Dactylopagrus~~ macropterus (Schneider)

Cichla macroptera Schneider,
Syst. Ichth. Bloch, p. 342, 1801
(type locality, New Zealand).

Sciaena macroptera (Forster)
Schneider, op. cit., p. 342 (name
in synonymy).

Cheilodactylus macropterus

Richardson, Proc. Zool. Soc.

London, p. 62, 1850; Ann.
Mag. Nat. Hist., London, ser. 2,
vol. 7, p. 278, 1851.

— Castelnau, Proc. ~~Zool~~ Zool.
Acclimat. Soc. Victoria, vol. 1,
p. 74, 1872 (Melbourne fish
market).

— Fowler, Proc. Acad. Nat. Sci.
Philadelphia, vol. 78, p. 272, 1926
(Buenos Aires).

Chilodactylus macropterus

Günther, Cat. Fish. Brit. Mus.,
vol. 2, p. 78, 1860 (Port Arthur;
Australia; Port Essington).

~~Guide~~ — Macleay, Proc. Linn.

Soc. New South Wales, vol. 5,

pt. 3, p. 42 ¹⁸⁸¹ (Port Jackson;

Tasmania; Port Phillip). —

Johnston, Proc. Roy. Soc. Tasmania

~~pp. 76, 112, 1882~~ — Fenion-Wood, Fish Fishes New South Wales, p. 46,
pp. 76, 112, 1882. — Sherrin, ^{pl. 10,} 1883.

Handb. New Zealand Fish., p.

98, 1886. — Ogilby, Edible Fish.

New South Wales, p. 57, 1893. —

Berg, Anal. Mus. Buenos Aires, ~~p. 227~~

~~7924~~ vol. 4, p. 60, 1895 (Mar del Plata).

— Gill, Proc. Acad. Nat. Sci.

Philadelphia, p. 117, March 1861

(reference) — Hutton, Fishes of New
Zealand, p. 8, 1872.

— Ribeiro, Arch. Mus. Nat. Rio de

Janeiro, vol. 17, (Chilodactidae), p.

2, pl., 1915. (Rio Janeiro ~~Mar del Plata~~).

— Devincenzi, Anal. Mus. Montevideo,

p. 227, 1924 (Banco Inglés).

— Regan, Brit. Antarct. "Terra
Nova" Exped., Zool., vol. 1, no. 1, p.
18, 1914 (Cape North, New Zealand).

Chilodactylus macropterus

Hector, Notes Ed. Fish. New
Zealand, p. 107, pl. 2, fig. 10, 1872.

Dactylosparus macropterus

McCulloch, Zool. Res. Endeavour,
vol. 1, p. 66, pl. 12, 1911 (off east
coast Flinders Island; Murray
River mouth, 20 fathoms; 40
miles west of Kingston, South
Australia, 30 fathoms).
Waite, Mem. New South Wales Nat. Club,
vol. 2, p. 32, 1904. —

— Waite, Rec. Canterbury Mus., vol. 1, no. 4,
p. 379, Dec. 28, 1912 (reference).

Dactylopagrus macropterus

McCulloch, Austral. Mus. Mem.,
no. 5, pt. 2, p. 258, Sep. 10, 1929
(reference); Fish. New South
Wales, ed. 3, p. 67, pl. 29, fig.
246 a, 1934.

Waite, Rec. South Australian Mus.,
vol. 2, no. 1, p. 123, fig. 187, April 23,
1921. — Whitley, Pap. Proc. Roy. Soc. Tasmania,
p. 55, pl. 4, fig. 5, Jan. 16, 1929 (Derwent). —

Waite and McCulloch, Trans. Roy. Soc.
South Australia, vol. 39, p. 464, 1915
(Great Australian Bight).

Cheilodactylus carponemus
Cuvier, Règne Animal, ed. 2,
vol. 2, p. 177, April 1829 (on
Cichla macroptera, Schneider)

— Cuvier,

(Hist. Nat. Poiss., vol. 5, p. 362,
pl. 128, 1830 (type locality, New
Zealand; "baie de la Reine-
Charlotte"; "port du Roi-George,
à la pointe sud-ouest de la
Nouvelle-Hollande"). — Rich-
ardson, Proc. Zool. Soc. London,
p. 61, 1850 (); Ann.
Mag. Nat. Hist., London, vol.
7, p. 277, 1851.

— McCoy, Prodr. Zool. Victoria,
dec. 18, pls. 123, 124, 1889.

Chilodactylus carponemus Günther,
Cat. Fish. Brit. Mus., vol. 2, p.
78, 1860 (compiled). — ~~Hiet~~
Hutton, Fishes of New Zealand,
p. 7, 1872 (copied). — McCoy,
Prodr. Zool. Victoria, Dec. 18,
pls. 173 and 174, 1889.

Sparus carponemus (Parkinson)
Cuvier, Hist. Nat. Poiss., vol. 5, p.
 362, 1830 ("baie de la Reine-
 Charlotte").

Dactylosparus carponemus
Gill, Proc. Acad. Nat. Sci.
 Philadelphia, p. 117, March
 1861 (reference). — Waite, Austral.
 Mus. Mem., no. 4, pt. 1, p. 85,
 Dec. 23, 1899 (Newcastle Bight).

Dactylopagrus carpanemus McCulloch,
Austral. Mus. Mem., no. 5, pt. 2,

p. 257, Sep. 10, 1929 (reference).

Waite, Rec. South Australian

Mus., vol. 2, no. 1, p. 123, fig. 186,

April 23, 1921. —

Sciaenoides abdominalis Rich-
ardson, Rep. Brit. Assoc. Adv.

Sci., pp. 18, 19, 1842 (1843)
(type locality, Cape Kidnappers,
New Zealand).

Cheilodactylus abdominalis
Richardson, Proc. Zool. Soc. London,
p. 64, Nov. 12, 1850 (type locality,
Port Arthur, Tasmania).

336

Depth $2\frac{3}{5}$ to $2\frac{7}{8}$; head $3\frac{1}{4}$ to $3\frac{4}{5}$, width $1\frac{3}{4}$ to $2\frac{1}{5}$. Snout $2\frac{2}{5}$ to $2\frac{3}{4}$ in head; eye $3\frac{1}{2}$ to $3\frac{7}{8}$, $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, little greater than interorbital, equal in larger example; maxillary reaches opposite front nostril, length $3\frac{1}{3}$ to $3\frac{2}{3}$ in head; teeth in bands in jaws, in 4 or 5 irregular series and outer row little enlarged, compressed, slender, pointed; interorbital $3\frac{1}{2}$ to $4\frac{1}{8}$, slightly convex. Gill rakers $5 + 15$, lanceolate.

Scales 50 to 52 in lateral line to caudal base and 2 more on latter; 7 above, 13 below, 38 predorsal, extending slightly before front nostril or to last third in snout. Scales

with 8 to 17 basal radiating striae, with 0 to 8 incomplete auxiliaries; circuli fine.

D. XVI or XVII, 25, I to 27, I, sixth spine $1\frac{3}{5}$ to $2\frac{1}{6}$ in head, first branched ray $3\frac{1}{8}$ to $3\frac{1}{2}$; A. III, 13, I, second spine $3\frac{1}{4}$ to $4\frac{1}{6}$, second ray $2\frac{7}{8}$ to 3; least depth of caudal peduncle $3\frac{1}{8}$ to $3\frac{1}{2}$; caudal 1, deeply forked, lobes slender; ventral $1\frac{1}{3}$ to $1\frac{2}{5}$; pectoral rays II, 7, VI, length $2\frac{1}{8}$ to $2\frac{1}{2}$? in fish without caudal.

Back brown, with soiled appearance on sides and below. Borders of scales slightly darker than centers, though form indistinct longitudinal pale bands on sides. Fins dull brown. Inside gill opening blackish.

338

South Atlantic, Australia,
Tasmania, New Zealand.

A. N. S. P., one example. Buenos
Aires, Argentina. 1917. Argentine
Government. Length 314 mm.
dry skin.

A. N. S. P., one example. Buenos
Aires. 1922. Pedro Hericé.
Purchased. Length 275 mm.

Sciaenoides
~~Dactylopagrus~~ morwong (Ramsay
and Ogilby)

Chilodactylus morwong Ramsay
and Ogilby, Proc. Linn. Soc. New
South Wales, ser. 2, vol. 1, pp. 879,
881, Nov. 1889 (type locality,
Botany Bay, New South Wales).

Dactylopagrus morwong McCulloch,
 Austral. Mus. Mem., No. 5, pt. 2.
 p. 257, Sep. 10, 1929 (reference);
 Fish. New South Wales, ed. 3, p.
 67, 1934.

Whitley, Pap. Proc. Roy. Soc. Tasmania, p.
 56, Jan. 16, 1929 (Tasmania). —

Sciaenoides morwong Whitley,
 Rec. Austral. Mus., vol. 19, No. 4,
 p. 235, Sep. 19, 1935 (off Deep
 Tempest, Stradbroke Island,
 Queensland).

Chilodactylus polyacanthus
Anonymous, Liber, Proc. Linn.
Soc. New South Wales, p. IV,
Aug. 25, 1886 (nomen nudum).

Chilodactylus carponemus
 (not Cuvier) Ogilby, Edible Fish.
New South Wales, p. 55, pl. 18.
 1893 (Port Jackson; Sydney).

Dactylosparus carponemus
McCulloch, Zool. Res. Endeavour,
vol. 1, p. 66, 1911 (east coast of
Lindero Island; between
Port Stephens and Newcastle;
22 to 60 fathoms).

Depth $2\frac{1}{2}$; head $3\frac{1}{4}$. Snout 2 in head; eye $6\frac{1}{2}$, $3\frac{1}{2}$ in snout; maxillary reaches half way in snout, length 4 in head; jaws with band of villiform teeth and an outer enlarged conic series; interorbital low, convex.

Scales 55 to 59 in lateral line; 7 above, 18 below. Preorbital naked. Scales on head above forward on snout to beyond nostrils. Dorsals and anals with narrow basal sheath covered with several series of small scales.

D. XVII to XIX, 26 to 30, fifth spine $3\frac{1}{8}$ in head, first ray $4\frac{2}{5}$; A. III, 15 to 17, first ray $5\frac{1}{5}$; caudal $1\frac{1}{8}$, widely forked; least depth of caudal peduncle $3\frac{7}{8}$; pectoral to end of branched

344

rays $1\frac{1}{5}$, rays II, 6, I, 1, V, largest
lower ray reaches middle of anal
or $1\frac{3}{5}$ to caudal base; ventral
rays I, 5, fin 2 in head.

Purplish gray above,
darkest on head. Each scale
with greenish golden dark
edged spot, forming inconspicuous
bands. Lower part of sides
and abdominal region silvery.
Golden band, margined above
and below by iridescent purple
below middle of eye along snout.
Length 710 mm. (Ogilby.)

New South Wales, Victoria,
Tasmania.

345

Genus Acantholatris Gill

Acantholatris Gill, Proc. Acad.
Nat. Sci. Philadelphia, p. (114)
119, March 1862. (Type
Chaetodon monodactylus
Carmichael, orthotypic.)

Body oblong, subfusiform, highest above ventral fins, with caudal peduncle slender. Head rather small, conic, upper profile nearly straight. Eye mostly above level of snout and opercle, nearly intermediate between snout and nape. Mouth small, jaws nearly equal. Lips thick. Teeth pluriserial in each jaw. Preopercle subvertical behind. Scales moderate or large. Branchiostegals 6. First dorsal rather longer than second, arched and with 17 stout spines, high as or higher than second dorsal. Anal oblong, with 3 robust spines and 12 rays, which slowly diminish. Pectoral with a simple ray extended.

Acantholatris monodactylus
(Carmichael)

Chaetodon monodactylus
Carmichael, Trans. Linn. Soc.
London, vol. 12, p. 500, pl. 24,
1818 (type locality, Tristan
da Cunha).

Chilodactylus monodactylus
Günther, Cat. Fish. Brit. Mus.,
vol. 2, p. 81, 1860 (copied); Rep.
Voy. Challenger, vol. 1, pt. 6, p.
24, 1880 (Juan Fernandez).

Cheilodactylus monodactylus

Delfin, Cat. Peces de Chile,
Z. 70, 1901 (Juan Fernandez).

Acantholatris monodactylus

Gill, Proc. Acad. Nat. Sci.

Philadelphia, p. 119, March
1862 (reference).

Cheilodactylus carmichaelis

Cuvier, Hist. Nat. Poiss., vol. 5,
p. 360, 1830 (on Carmichael).

— Valenciennes, Hist. Nat.

Poiss., vol. 9, p. 489, 1833 (Chili);

Règne Animal Cuvier, Ed. Ill.,

Poiss., pl. 31, fig. 2, 1839.

— Gay, Hist. Chile, Zool., vol.
2, p. 197, 1848.

Chilodactylus ~~Lampe~~ carmichaelis

Lampe, Deutsch. Südpolar Exped.,

vol. 15, Zool. 7, p. (207) 233, 1914

(Kratersee, St. Paul).

D. XVII, 24; A. III, 12, second
 spine very strong. Pectoral with
 6 lower rays simple, longest
 reaching to second anal spine.
 Scales 45 in lateral line.
 Body with some indistinct
 vertical bands. Blackish blotch
 on shoulder and below eye.
 (Günther.)

25th 1977, 1848.

Chlorostylinus longicaudatus
 Temm., *Reis. Ichth.*, 1835, p. 135, 184
 (Günther, *Cat. Fishes*).

Genus Chirodactylus Gill

351

Chirodactylus Gill, Proc. Acad.
Nat. Sci. Philadelphia, p. 119,
March 1862. (Type Cheilodactylus
antonii Valenciennes, monotypic.)

Body highest above ventral fins, narrowing rapidly to slender caudal peduncle. Head rather small, much compressed, profile conic with upper oblique and nearly straight. Eye ~~above or~~ on ~~upper~~ or slightly impinging on upper profile, mostly advanced. Mouth small, lower jaw shorter than upper. Lips well developed. Teeth in each of jaws pluriserial in front. Preopercle with hard edge vertical, extended below. Branchiostegals 6. Scales moderate. Crown and cheek scaly. First and second dorsal nearly equally long, first convex and highest near middle

and much lower behind than second fin. Anal short, with 3 spines moderately extended at its front angle and rapidly diminishing behind, so rayed edge nearly vertical. Pectoral with one of simple rays moderately extended.

Analysis of Species

a.¹ Anal rays 7.

antonii.

a.² Anal rays 10.

variiegatus.

Chirodactylus antonii (Valen-
ciennes)

Cheilodactylus antonii Valen-
ciennes, Hist. Nat. Poiss., vol. 9,
p. 494, 1833 (type locality,
"cap Saint-Antoine", sur la
côte du Chili, à quarante
lieues de Valparaiso). —
Gay, Hist. Chile, Zool., vol. 2, p.
201, 1848; Atlas ~~de~~ Zool.,
Ictiol., pl. 5 bis, fig. 2, 1854.

— Delfin, Cat. Peces de Chile,
p. 76, 1901 (Santiago de Valparaiso,
Coquimbo).

Chilodactylus antonii Günther,
Cat. Fish. Brit. Mus., vol. 2, p. 82,
1860 (copied).

Chirodactylus antonii Gill,
Proc. Acad. Nat. Sci. Philadelphia,
p. 120, March 1862 (reference).

Chilodactylus variegatus (not
Valenciennes) Steindachner, Zool.
Jahrbücher, Suppl. band 4, p.
290, 1898 (part).

D. XVII, 29, seventh spine
 longest; A. III, 7. Pectoral with
 5 simple rays, longest exceeding
 fin by $\frac{1}{6}$ its length. Body with
 4 or 5 greenish cross bands.
 Cheek dotted with blackish.
 (Günther.)

Chile.

Chirodactylus variegatus
(Valenciennes)

Cheilodactylus variegatus Valenciennes, Hist. Nat. Poiss., vol. 9, p. 494, 1833 (type locality, "côtes du Chili; Valparaiso"). —

Gay, Hist. Chile, Zool., vol. 2, p. 199, 1848 (Valparaiso). —

J. F. Abbott, Proc. Acad. Nat. Sci. Philadelphia, p. 357, 1899.

— Evermann and Radcliffe, Bull. U. S. Nat. Mus., no. 95, p. 113, 1917 (Piscadores Island, Peru; Ancón; Guanape North Island; Paita; Independencia Bay, Santa Rosa Island; Lobos de Afuera). — Delfin, Cat. Peces de Chile, p. 71, 1901 (Chile).

Chilodactylus variegatus Günther,
 Cat. Fish. Brit. Mus., vol. 2, p. 81,
 1860 (compiled). — Steindachner,
 Zool. Jahrb. Suppl. Band 4,
 heft 2, p. 290, 1898 (^{Siquique} ~~Chile~~);
 Denks. Akad. Wiss. Wien, math.-
 naturw. Kl., vol. 72, p. 34, 1902
 (Callao). — Starks, Proc. U. S.
 Nat. Mus., vol. 30, p. 797, 1906.

Chiriodactylus variegatus Gill,
 Proc. Acad. Nat. Sci. Philadelphia
 p. 120, March 1862 (reference).

Cheilodactylus tschudii Müller
and Troschel, Horae Ichth., vol.
3, p. 25, 1849 (type locality,
Peru).

Cheilodactylus conictus Tschudi,
Fauna Peruana Ichth., p. 15, pl.
2, 1845 (type locality, "Meere
von Lurin").

359

Depth $2\frac{3}{5}$ to $2\frac{7}{8}$; head $2\frac{7}{8}$ to $2\frac{9}{10}$, width $2\frac{1}{8}$ to $2\frac{1}{10}$. Snout 3 in head; eye 5, hind edge midway in head; maxillary reached nostrils, expansion $2\frac{1}{2}$ in eye, length $3\frac{3}{5}$ to $3\frac{2}{3}$ in head; mouth small, lower jaw included; lips broad, thick, edges papillate; bands of fine conic teeth in jaws, narrowing posteriorly; palate edentulous; interorbital 4 in head, broad, little convex. Gill rakers 7 or 8 + 15, lanceolate, $2\frac{1}{2}$ to 3 in gill filaments, which subequal with eye.

Scales 54 to 56 + 8 to 10 in lateral line; 7 above, 15 below, 30 to 32 predorsal; 13 to 16 rows on cheek to its angle. Row of small scales down middle of chest

74

360

and breast. narrow basal band of scales along dorsals and anals. Caudal and pectoral bases scaly. Scales with 15 to 21 basal radiating striae; apical exposed area broadly and finely rugose; circuli fine, rather uneven.

D. XVII, 29, fifth to seventh spines $3\frac{1}{5}$ to $3\frac{3}{5}$ in head, second ray 2 to 3; A. III, 10, third spine $4\frac{1}{2}$, third ray 2; least depth of caudal peduncle $3\frac{2}{3}$; pectoral $1\frac{2}{5}$, rays I, 6, VII or ~~XXXX~~ 8, VI; ventral $1\frac{4}{5}$ to $1\frac{5}{6}$ in head.

Dark brown above, paler below. Fins dark brown.

Chile, Peru. The materials listed below agree with

Steindachner's account.

Cheilodactylus antonii Valenciennes
is placed in the synonymy by
Steindachner, though according
to Gay the second anal spine
is $\frac{2}{5}$ of the long third one.

Cheilodactylus ~~torosus~~ cinctus

Tschudi is shown with the
second anal spine nearly 3 times
as long as the second, and this
is also mentioned in the
description.

U. S. N. M., no. 83031. Peru.
Wilkes Exploring Expedition.
Length 248 mm. to ends of
damaged caudal tips.

U. S. N. M., no. 83133. Callao,
Peru. Wilkes Exploring Expedition.
Length 220 mm.:

Genus Cheilodactylus Lacépède

Cheilodactylus Lacépède, Hist.
nat. Poiss., vol. 5, p. 5, 1803. (Type
Cheilodactylus fasciatus Lacépède,
monotypic.)

[Trichopterus Gray, Cat. Fish. Gronow,
p. 162, 1854. (Type Trichopterus
indicus Gray, monotypic.)

[Chilodactylus Günther, Cat. Fish.
Brit. Mus., vol. 2, p. 78, 1860. (Type
Cheilodactylus fasciatus
Lacépède.)

1329

with dusky cloudings, more or less as 4 or 5 dusky blotches in young. ~~Blotches~~

Our smaller examples show a tendency to longitudinal streaks on lower sides, the reticulations breaking. We have compared this with Schneider's figure and believe it to be the same. Günther says "the black cross-bands on the caudal fin, perhaps, have been added by Bloch" but our smaller specimens show them distinctly, much as in Schneider's figure.

Day under Tenthia oramin says "in specimens over 7 or 8 inches in length * * * the white spots decrease in number and have a blue tinge. The shoulder spot becomes dark, but the spot on the upper edge of the eye remains. The black shoulder spot has been omitted in B.L. Schneider's figure, which otherwise is not incorrect, when freshly captured the bars across the caudal fin are very distinct." To this we take exception in that our specimens appear to never have had a dark shoulder spot and the white or pale spots in the body are greatly more numerous with age. It is

Front profile not steeply inclined. Breast and belly rounded with age. Scales rather small, concentrically striate, on cheeks, opercles and breast considerably smaller, feebly developed and more or less papilliform. Sheath along base of dorsal fin with ~~3 or 4~~ 6 series of scales, and 3 or 4 series forming sheath along anal base; no naked groove between sheath and body scales. Head scaly, without tubercles. Dorsal spines evenly graduated. Anal short, spines not very strong, front rays longer than posterior.

South Africa.

The following is merely a nominal reference:

Cheilodactylus nigrescens
Saville-Kent

Cheilodactylus nigrescens Saville-Kent, Nat. in Australia, p. 166, 1897 (type locality, Fremantle, Western Australia).

Cheilodactylus nigrescens McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 258, Sep. 10, 1929 (reference).

Cheilodactylus douglasii Hector

Chilodactylus douglasii Hector,
Trans. New Zealand Inst., vol.
7, p. 244, pl. 10, fig. 11a, 1874
(1875) (type locality, Hgunguru
Bay; north of Wangarei; Bay
of Islands; Auckland).

Cheilodactylus douglasii Waite,
Rec. Canterbury Mus., vol. 1, no. 1,
p. 20, 1907 (reference).

Depth $2\frac{1}{2}$ to $2\frac{2}{3}$; head $3\frac{1}{2}$ to $3\frac{3}{4}$.

Snout 2 in head; eye $6\frac{1}{4}$, $3\frac{1}{2}$ in snout; mouth cleft reaches $\frac{1}{4}$ to eye; teeth uniserial on premaxillary and on lower maxillary small, trenchant and deeply imbedded on a fleshy gum; interorbital low.

Scales 63 in lateral line; 7 above, 18 below. Thoracic region keeled, jugular with cross folds. Cheek scaled. Head and shoulder scales minute, body scales cycloid, $\frac{2}{3}$ diameter of eye.

D. XVIII, 19, sixth spine $3\frac{1}{4}$ in head, fifth ray $4\frac{1}{2}$; A. III, 16, spines very small, fifth ray 6; caudal $1\frac{1}{8}$, widely forked; least depth of caudal peduncle $3\frac{1}{2}$; pectoral 3 in fish without

caudal, reaches opposite front part of rayed anal, rays 9, VII; ventral rays I, 6, fin $1\frac{2}{5}$ in head.

Gray or green on back and head. Cheeks silvery. Gold and green patch on humerus and behind gills. Back and sides of body green. Belly silvery. Fins steel blue. Dorsal blue gray, with green spots. Length 610 mm. (Hector.)

New Zealand.

368

Cheilodactylus fuscus Castelnau.

Chilodactylus fuscus Castelnau,
Proc. Linn. Soc. New South Wales,
vol. 3, pt. 4, p. 376, May 1879,
(type locality, Sydney market).
— Macleay, Proc. Linn. Soc.
New South Wales, vol. 5, p. 425,
1881 (reference). — Tenison-Wood,
Fish Fisher. New South Wales,
p. 46, pl. 11, 1883.

Cheilodactylus fuscus McCulloch,
 Austral. Mus. Mem., No. 5, pt. 2,
 p. 258, Sep. 10, 1929 (reference);
Roughley, Fishes of Australia, p.
 125, pl. 40, 1916 (Queensland;
 New South Wales). —

Fishes of New South Wales, ed. 3,
 p. 68, ~~49~~ pl. 29, fig. 248a, 1934.

Chilodactylus annularis Castelnau,
 Proc. Linn. Soc. New South Wales,
 vol. 3, pt. 4, p. 377, May 1879.
 (type locality, Sydney market).
 — Macleay, Proc. Linn. Soc. New
 South Wales, vol. 5, p. 425, 1881
 (reference).

376

Depth $2\frac{1}{3}$; head $3\frac{1}{4}$, snout $2\frac{3}{5}$
in head; eye ^{4 to 5} $5\frac{2}{5}$, $2\frac{1}{8}$ in snout;
maxillary reaches opposite eye,
length $3\frac{7}{8}$ in head; lower jaw
shorter, lips fleshy; jaws with
band of villiform teeth; inter-
orbital low, almost flat.

Scales 58 to 62 in lateral
line; 8 or 9 above, 18 or 19 below.
Snout and preorbital nased,
rest of head covered with small
scales. With age blunt knob
before and level with upper
part of eye, also another
forward above end of snout.
Dorsals and anals with narrow
basal scaly sheaths.

D. XVIII, 31 to 33, begins over
angle of preopercle, fifth ^{spine} ~~ray~~
 $2\frac{3}{4}$ in head, first ray $3\frac{4}{5}$.
A. III, 9 or 10, first ray $1\frac{3}{4}$.
caudal $1\frac{1}{8}$, forked, least depth

of caudal peduncle $3\frac{1}{4}$; pectoral $2\frac{1}{2}$ in fish without caudal, reaches anal origin, rays 14; ventral rays $\underline{\underline{I}}, 5$, fin $1\frac{2}{3}$ in head.

Back, head and opercular region reddish-brown. Sides creamy yellow, scales edged with red. Abdominal region white. Orange band round eye, broadest in front and very narrow or wanting above. Iris dark brown. Dorsal spines orange, -gray membrane darkest at tip. Dorsal rays reddish-brown, narrowly edged with orange. Anal purplish brown. Caudal deep reddish brown, narrowly edged with orange. Pectoral rays pale pink, membrane bluish gray. Ventral pale red. Length 458 mm. (Roughley.)

New South Wales, Queensland.

Cheilodactylus nigripes Richardson

Cheilodactylus nigripes Richardson,
Proc. Zool. Soc. London, vol. 18, p.
66, Nov. 12, 1850 (type locality,
King George's Sound, Western
Australia); Ann. Mag. Nat.
Hist., London, vol. 7, p. 281,
1851.

— McCulloch, Austral. Mus. Mem., no. 5, pt.
2, p. 258, Sep. 10, 1929 (reference).

Chilodactylus nigripes Günther³⁷³
Cat. Fish. Brit. Mus., vol. 2, p.
82, 1860 (copied). — Macleay,
Proc. Linn. Soc. New South
Wales, vol. 5, p. 424, 1881 (copied).

374

Scales 61 in lateral line. Knob
above upper angle of orbit. D.
XVIII, 26, fin notched, fifth
spine longest and rather more
than $\frac{1}{3}$ of body depth. A, III, 10.
Pectoral with 5 simple rays,
second longest and falls short
of vent, while $\frac{1}{3}$ its length
projects beyond membrane.

(Richardson.)

Western Australia, Tasmania?

Cheilodactylus spectabilis Hutton

Chilodactylus spectabilis Hutton,

Fish. New Zeal. Cat. Diagn., p. 8, Feb. 1872 (type locality, Cook Straits, New Zealand); Trans. New Zealand Inst., vol. 5, p. 259, pl. 7, 1873. — Hector, Notes Ed. Fish. New Zealand, p. 107, 187 (reference).

— Macleay, Proc. Linn. Soc. New South Wales, vol. 5, p. 424, 1881 (Tasmania; Port Phillip).

Cheilodactylus spectabilis McCulloch, Austral. Mus. Mem.,
 no. 5, pt. 2, p. 258, Sep. 10, 1929
 (reference); Fish. New South
 Wales, ed. 3, p. 68, 1934.
Whitley, Pap. Proc. Roy. Soc. Tasmania,
 7.54, Jan. 16, 1929 (Hobart). —

Chironemus spectabilis Waite,
 Rec. Canterbury Mus., vol. 1, no. 1,
 p. 21, April 25, 1907 (reference).

Chilodactylus asper Klunzinger,
Archiv Naturg., vol. 38, pt. 1, p.
24, (after Feb.) 1872 (type
locality, not given).

Chilodactylus allporti Günther,
Ann. Mag. Nat. Hist., ser. 4, vol. 10,
p. 184, Sep. 1, 1872 (type locality,
Tasmania).

Cheilodactylus rubrofasciatus
Castelnau, Proc. Linn. Soc. New South
Wales, vol. 3, pt. 2, p. 140, Dec.
1878 (type locality, Melbourne
market).

depth little over $3\frac{1}{2}$; head $4\frac{1}{4}$.
 Scales 55 in lateral line, 5
 above, 16 below. D. XVIII, 26,
 deeply notched, fourth, fifth
 and sixth spines about equal
 and longest, rather more than $\frac{3}{4}$
 of head. A. III, 9. Pectoral with
 6 simple rays, upper one longest
 but not so long as head and
 not extending to end of ventrals,
 others graduated. Back and
 sides yellowish orange, with
 6 transverse bands of reddish
 orange. Belly yellowish white.
 Dorsal blackish. Length 380 mm.
 (Hutton.)

New South Wales, Victoria,
 Tasmania, New Zealand.

Baker, cat. Fishes, p. 102, Dec.
 1878 (type locality, Melbourne
 market).

379

Cheilodactylus fasciatus Lacépède

Cheilodactylus fasciatus Lacépède,
Hist. nat. Poiss., vol. 5, pp. 5, 6, pl.
1, fig. 1, 1803 (type locality, "les
Indes orientales"). — Cuvier,
Hist. nat. Poiss., vol. 5, p. 367, 1830
(Cape of Good Hope). — Pappe,
Synop. Edible Fish. Cape of Good
Hope, p. 11, 1853 (Table Bay).

— Castelnau, Mém. Poiss. Afrique
Australe, p. 11, 1861 (Cape of Good
Hope).

— Fowler, Proc. Acad. Nat. Sci.
Philadelphia, vol. 75, p. 249, 1925
(Natal coast).

l.c., deel 8, 1855, p. 306 (Batoe), p. 393
 (Amboina); l.c., deel 12, 1856, p. 215 (Mias);
 l.c., deel 13, 1857, p. 332 (Batavia, Bantam,
 Anjer, Samarang; Sumatra; Mias; Batu;
 Banka; Celebes; Ternate; Batjan; Amboina;
 Ceram; Timor), p. 384 (Batjan); l.c., deel
 15, 1858, p. 242 (Singapore); l.c., deel 18,
 1859, p. 354 (Bawean); l.c., deel 20, 1859-60,
 p. 203 (Karangbolong), p. 206 (Boelling, Bali);
 l.c., deel 21, 1860, p. 138 (Muntok, Banka);
 l.c., deel 22, 1860, p. 108 (Muntok). —

Bleeker, Act. Soc. Sci. Ind. Néerl., vol. 1,
 no. 3, 1856, p. 4 (Manado); l.c., vol. 3, no. 5,
 1857-58, p. 2 (Macassar); l.c., vol. 3, no. 9,
 1857-58, p. 6 (Siboga); l.c., vol. 8 (Sumatra),
 1859, p. 12 (Benculen).

Günther dorsalis Pantor, Journ. Asiat. Soc.
 Bengal (Cat. Malay. Fish.), vol. 18, pt. 1,
 1849, p. 209 (Pinang). — Günther, Cat. Fish.

~~Günther, Cat. Fish. (Pinang), p. 209 (Pinang).~~

Chilodactylus fasciatus Günther,
Cat. Fish. Brit. Mus., vol. 2, p. 81,
1860 (Cape of Good Hope). —
Gilchrist, Marine Investig. South
Africa, vol. 1, p. 117, 1902 (reference).

— Barnard, Ann. South African
Mus., vol. 27, pt. 2, p. 455, Oct. 1927
(Table Bay, False Bay, Algoa
Bay, East London, to 40 fathoms).
(Great Fish Point near Port Alfred).

Trichopterus indicus Gray, Cat.
Fish Cronow, p. 162, 1854 (type
locality, India).

Cheilodactylus multiradiatus

Castelnau, Mém. Poiss. Afrique
 australe, p. 12, 1861 (type locality,
 "la Colonie du cap de Bonne-
 Espérance").

(303)

Depth $2\frac{2}{3}$; head $2\frac{7}{8}$, width 2.
Snout $2\frac{7}{8}$ in head; eye $3\frac{3}{4}$,
 $1\frac{1}{4}$ in snout, greater than
interorbital; maxillary reaches
opposite hind nostril, length
 $4\frac{1}{2}$ in head; interorbital 4,
slightly convex to level. Gill
rakers $5 + 13$, lanceolate.

Scales 76 in lateral line
to caudal base and 6 more on
latter; 8 above, 17 below; 52
predorsal; 18 rows across
cheek to preopercle angle.

Scales with 10 basal striae
and 3 auxiliaries; 7 to 9 broad
flat terminal denticles, median
often bifid.

D. XVIII, 23, I, fourth spine
 $3\frac{1}{8}$ in head, last spine $3\frac{1}{2}$,
first ray $2\frac{2}{3}$; A. III, 10, I, second

spine $3 \frac{3}{4}$, second ray 2; caudal $1 \frac{1}{2}$, forked; caudal $1 \frac{1}{2}$, forked; least depth of caudal peduncle $4 \frac{1}{4}$; pectoral rays 8, V, third branched ray $1 \frac{2}{5}$, second simple ray 1.

Dull brown, whitish below. Six dusky transverse bands, much narrower than interspaces and inclined slightly posteriorly below. Iris slate.

Fins all pale brown.

South Africa, Natal.

A. N. S. P., one example. Natal coast, in 8 fathoms (from stomach of steinbrass). H. W. Bell Marley. Length 135 mm.

Cheilodactylus bicornis
Steindachner

Cheilodactylus bicornis Steindach-
ner, Zool. Jahrb., Suppl. Band
4, p. 291, pl. 17, 1898 (type
locality, Juan Fernandez).
— Deffin, Cat. Peces de Chile,
p. 71, 1901 (reference).

Depth $4\frac{1}{5}$; head $3\frac{2}{5}$. Snout $3\frac{1}{4}$ in head; eye $4\frac{1}{4}$, $1\frac{1}{4}$ in snout; maxillary reaches $\frac{1}{8}$ in eye, length $3\frac{4}{5}$ in head; lower jaw little shorter than upper; bands of pointed teeth in jaws, on vomer and palatines; interorbital $4\frac{1}{3}$, deeply concave; preopercle edge entire; pointed postero-supraorbital knob each side.

Scales 58 in lateral line. Small scales on opercle and postocular region, also on breast, pectoral and caudal bases.

Low scaly basal sheaths along dorsals and anals.

D. XIV, 17, fourteenth spine $2\frac{1}{5}$ in head, first branched ray $2\frac{1}{3}$; A. III, 5, third spine $1\frac{1}{3}$, first ray $1\frac{1}{4}$; caudal $1\frac{2}{3}$, truncate; least depth of

caudal peduncle $3\frac{1}{8}$; pectoral
1, rays I, 8, VI, uppermost
simple one largest; ventral
rays I, 5, fin $1\frac{2}{3}$ in head.

Along side of body 3 irregu-
lar row of deep brown blotches
on clear brown ground color;
those ~~in~~ upper row extending
on dorsal bases. Dark bar
below eye. Fins with dark
violet brown markings, as
3 large dark blotches on first
dorsal, wavy dark bars
on second, ^{and} spots on rays of
pectoral forming 7 transverse
rows. Length 210 mm. (Steindachner.)

Juan Fernandez.

389

Genus Palunolepis Barnard

Palunolepis Barnard, Ann. Mag.
Nat. Hist. London, ser. 9, vol. 20,
p. 69, 1927. (Type Chilodactylus
grandis ~~Barnard~~ Günther,
monotypic.)

14757. Romblon. March 26, 1908.

Length 130 mm.

5026. South Taminiao. February 26, 1908.

Length 185 mm.

7840. Tagnab Island. January 7, 1909.

Length 330 mm.

22851. Talissan Island. November 9, 1909.

Length 104 mm.

7367. Tara Island. December 15, 1908.

Length 270 mm.

4909. Tataan, Simalue Island. February 19, 1908. Length 332 mm.

8 examples. Varadero Bay, Mindanao. July 23, 1908. Length 32 to 43 mm.

Body elongate ovoid, front upper profile not steeply inclined, breast and belly rounded with age. Head moderate or small, without tubercles. Scales moderately large, rough and granulose in center with a smooth margin. Scales on cheeks, opercles and middle line of breast smaller, well developed, not papilliform. Sheath along base of dorsal fin composed anteriorly of 1 row, posteriorly of 2 rows of scales and sheath along anal of 1 row. A naked groove between the sheath and the body scales. Dorsal spines evenly graduated. Anal short, spines not very strong, anterior

391
rays considerably longer than
posterior ones.

According to Barnard the
fretted appearance of the
scales, as if sand blasted,
and the naked groove beneath
the dorsal sheath are very
distinctive features which
appear to be absent in all
the other genera of this family.

Analysis of Species

a.¹ Soft dorsal rays 22 or 23.
grandis.

a.² Soft dorsal rays 29 to 31.
brachydactylus.

392

Palunolepis grandis (Günther)

Chilodactylus grandis Günther,
Cat. Fish. Brit. Mus., vol. 2,
p. 79, 1860 (type locality,
Cape Seas) — Gilchrist,
Marine Investig. South Africa,
vol. 1, p. 118, 1902 (reference).
— Gill, Proc. Acad. Nat. Sci. Phila-
delphia, p. 120, March 1862 (reference).

Palunolepis grandis Barnard,
Ann. South African Mus., vol. 2,
pt. 2, p. 457, pl. 20, fig. 1, Oct.
1927 (False Bay; Agulhas
Bank; to 40 fathoms).

393

Depth $2\frac{4}{5}$ to $3\frac{1}{4}$; head $2\frac{4}{5}$ to $3\frac{1}{4}$. Snout 2 in head; eye 4 to $6\frac{2}{3}$, 2 to $3\frac{2}{3}$ in snout, 1 to 2 in interorbital; maxillary reaches $\frac{2}{3}$ in snout or below nostrils, length $3\frac{1}{6}$ in head; front nostril with 2 fringed flaps; interorbital low.

Lower gill rakers 12 or 13.

Scales 50 to 53 in lateral line.

D. XVII or XVIII, 22 or 23, spines graduated to fifth which 2 to $3\frac{3}{4}$ in head, first ray 3; A. III, 9, first ray $2\frac{1}{8}$; pectoral caudal $1\frac{1}{5}$, forked; least depth of caudal peduncle 4; pectoral $1\frac{1}{8}$, simple rays VI, with second longest and reaching

to or beyond vent (figure
not showing ventral).

394

Uniform gray or brown,
naked groove below dorsal
sheath darker. Length to
950 mm. (Barnard.)

South Africa

395

Palunolepis brachydactylus
(Cuvier).

Cheilodactylus brachydactylus
Cuvier, Hist. Nat. Poiss., vol. 5,
p. 361, 1830 (type locality, "au
Cap"). — Pappe, Synop. Edible
Fish. Cape of Good Hope, p. 12,
1853 (rocks at Green Point).
— Castelnau, Mém. Poiss. Afrique
 australe, p. 11, 1861 (Cape of
 Good Hope). — Bleeker,
Nat. Tijds. Ned. Indië, vol. 21,
p. 52, 1860 (Cape of Good
 Hope).

396

Chilodactylus brachydactylus
Günther, Cat. Fish. Brit. Mus.,
vol. 2, p. 81, 1860 (Cape of Good
Hope). — Gill, Proc. Acad.
Nat. Sci. Philadelphia, p. 118,
~~1860~~ March 1860 (reference).
— Gilchrist, Marine Investig.
South Africa, vol. 1, p. 117, 1882
(reference).

Palunolepis brachydactylus

Barnard, Ann. South African
Mus., vol. 21, pt. 2, p. 458, Oct.
1927 (Table Bay; False Bay;
Agulhas Banks; East London;
Natal). — Fowler, Proc. Acad.
Nat. Sci. Philadelphia, vol. 86,
p. 476, Nov. 6, 1934 (Natal).

Chilodactylus gomonovii

Günther, Cat. Fish. Brit. Mus.,
vol. 2, p. 81, 1860 (type locality,
Cape of Good Hope) (name
in text).

Platypterus huttoni (not

Günther, Rep. Voy. Challenger,
vol. 31, p. 14, pl. 2, fig. 1 (young),
1889 (part).

Chilodactylus brevispinis

Regan, Ann. Mag. Nat. Hist.,
London, ser. 9, vol. 7, p. 416,
1921 (type locality,

Depth $2\frac{2}{3}$; head $3\frac{1}{5}$, width $2\frac{3}{5}$. Snout 3 in head; eye $3\frac{1}{2}$, $1\frac{1}{8}$ in snout, greater than interorbital; maxillary reaches $\frac{3}{4}$ in snout, expansion $3\frac{1}{2}$ in eye, length $3\frac{3}{4}$ in head; inter-orbital 4, low, broadly convex; preopercle edge entire. Gill rakers 6 + 14, slender, lanceolate, $\frac{1}{2}$ of gill filaments, which $\frac{1}{2}$ of eye.

Scales 48 + 4 in lateral line; 5 above to soft dorsal origin, 12 below, 22 predorsal forward front of eye; cheek scaly. Distinct naked groove narrowly along dorsal bases, and like that of anal furnished with rather low basal scaly sheaths; caudal scaly basally. Scales with 8-9 short marginal basal striae;

circuli moderate, complete.

D. XVIII, 28, I, sixth spine $3\frac{1}{2}$ in head, fifth ray $2\frac{1}{8}$; A. III, 9, third spine $3\frac{1}{2}$, third ray 2; caudal $1\frac{1}{4}$, well emarginate; least depth of caudal peduncle $3\frac{1}{3}$; pectoral 1, rays I, 7, VI; ventral $2\frac{1}{8}$ in head.

Back mouse gray, paler to drab or gray white below. Iris neutral gray. Fins all pale grayish, anal darker gray. South Africa.

A. N. S. P., one example. Natal: 1932. H. W. Bell Marley. Length 51 mm.

Genus Goniistius Gill

Goniistius Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 120, March 1862. (Type Cheilodactylus gonatus Cuvier, orthotypic.)

Zeodrinus Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, pt. 4, p. 377, May 1879. (Type Zeodrinus vestitus Castelnau, monotypic.)

Body highest before ventrals, narrowing rapidly below second dorsal to slender caudal peduncle; antedorsal region obliquely convex and carinated. Head rather small, much compressed, with oblique profile nearly straight or slightly incurved, with a pair of tubercles on front and another on snout. Eye below nearly in line with hind end of opercle or subopercle. Mouth small, lower jaw shorter and received in upper. Lips well developed, free. Teeth in each of jaws, pluriserial in front, uniserial on sides. Opercle spiniform behind, deeply emarginated above.

Preopercle vertical posteriorly.
entire. Branchiostegals 6.
Scales moderate. Cheeks and
crown scaly. First and second
dorsal nearly equally long,
first with 17 spines of
which first 3 very small
and graduated, fourth largest
and outline behind incurved
towards second fin; second
dorsal uniformly high,
exceeding last spines. Anal
short, nearly below middle
of soft dorsal, with 3 small
spines at its hind angle
and 8 or 9 rays, posterior
rapidly shorter, 20 rayed
edge subvertical. Pectoral
with simple rays moderate
or moderately elongated.

Analysis of Species

a.¹ Cheek without dark reticulating lines.

b.¹ Body with 3, broad, black, transverse bands. vizonarius.

b.² Body with black longitudinal band between dorsals and lateral line (young with 7 or 8 black cross bands). gibbosus.

b.³ Body with inclined parallel dark cross bands.

c.¹ Head with 2 oblique dark cross bands and 7 more on trunk and tail parallel.

c.² Head with 3 oblique dark cross bands. zonatus.

d.¹ Three oblique, black, parallel bands back from spinous dorsal. zebra.

d.² Single, broad, oblique, black band, including back posteriorly. vittatus.

a.² Cheek with dark reticulating lines. ephippium.

Goniistius vizonarius (Saville-Kent)

Chilodactylus vizonarius Saville-Kent, Proc. Roy. Soc. Tasmania, pp. xxx, xxxi, 408, 1887 (type locality, Tasmania).

Chilodactylus vizonarius Saville-Kent, Naturalist in Australia, pp. 165, 166, pl. 28, fig. 13, 1897.

McCulloch, Biol. Res. Endeavour, vol. 1, p. 64, pl. 11, 1911 (Anderson Bay, Tasmania; east coast of Flinders Island, Bass Strait).

Goniistius vizonarius McCulloch, Austral. Mus. Mem., no. 5, pt. 2, p. 259, Sep. 10, 1929 (reference).

Waite, Rec. South Australian Mus., vol. 2, no. 1, p. 122, fig. 185, April 23, 1921. —

406

Cheilodactylus gibbosus (not
Richardson) Castelnau, Proc. Zool.
Acclimat. Soc. Victoria, vol. 1,
p. 75, 1872 (Melbourne market).

Depth $2\frac{3}{5}$ to $2\frac{4}{5}$; head $3\frac{1}{2}$ to $3\frac{2}{3}$.
Snout $2\frac{4}{5}$ in head; eye $4\frac{1}{5}$ to $4\frac{4}{5}$, $1\frac{7}{8}$ in snout; maxillary reaches $\frac{7}{8}$ to eye, length $3\frac{2}{3}$ in head; band of villiform teeth in each jaw, vomer, palatines and tongue toothless; interorbital low, with hard conic point before each eye, extending slightly outwards and upwards.

Scales 65 to 68 in lateral line. Very small scales on head, extend forward to front edge of eye above and maxillary below, leaving snout naked. Very small scales on breast and in narrow band backward to ventrals. Scales on body large anteriorly, becoming smaller behind. Low scaly sheaths along dorsal and anal bases.

D. XVIII, 25 to 28, fifth spine
 2 in head, first ray $3\frac{3}{5}$; A.
III, 10; second ray $1\frac{1}{2}$; caudal
 $7\frac{1}{10}$, forked; least depth of
 caudal peduncle 3; pectoral
 rays I, 7, VI, fin reaches origin
 or middle of anal, or its length
 $2\frac{1}{2}$ in fish without caudal;
 ventral $1\frac{2}{5}$ in head, rays I, 5.

Silvery, scales with or
 without darker margins.
 Broad black transverse band
 from fifth to thirteenth dorsal
 spines then narrowing down and
 including ventral. Second similar
 band from front of soft dorsal
 to anal. Another less distinct
 band from nape over front part
 of head, defined behind by line
 behind eye to throat. Paired
 fins and anal blackish. Dorsal

and caudal light or dusky,
dark transverse body bands
sometimes invading dorsals.

Length 380 mm. J (McCulloch.)
South Australia, Victoria,
Tasmania.

Goniistius gibbosus (Richardson)

Cheilodactylus gibbosus Richardson,
Trans. Zool. Soc. London, pp. 21,
102, Oct. 1841 (types) locality,
Western Australia

Proc. Zool. Soc. London, vol. 9, p. 21, 1841;
(type locality, Western Australia);
p. 65, pl. 2, figs. 3-4, 1850;

Cheilodactylus gibbosus Günther, Cat.
Fish. Brit. Mus., vol. 2, p. 84, 1860
(type; Australia), p. 519 (Australia).
— Macleay, Proc. Linn. Soc. New South
Wales, vol. 5, p. 424, 1881 (West Australia;
Tasmania; Port Phillip). — Ogilby, Austral.
Mus. Mem., no. 2, p. 59, 1889 (Lorile & Howe Island).

Cheilodactylus (Goniistius) gibbosus
McCulloch, Fish. New South Wales,
ed. 3, p. 68, pl. 29, fig. 248c, 1934.

Chaetodon gibbosus (Banks) Richardson,
op. cit., pp. 21, 102 (name in text).

Goniistius gibbosus Gill, Proc. Acad.
Nat. Sci. Philadelphia, p. 121,
March 1862 (reference). — Stead,
Edible Fish. New South Wales,
p. 72, pl. 41, 1908. — Waite, Rec.
Austral. Mus., vol. 5, pt. 3, p. 207,
1904 (reference).

— Waite, Rec. Canterbury Mus. & Tr. New Zealand
Inst., Wellington, vol. 42, p. 378, 1909 (1910) (Kermadec
Islands).

— McCulloch, Austral. Mus. Mem.,
no. 5, pt. 2, p. 259, Sep. 10, 1929 (reference).
~~Fish. New South Wales, ed. 3,~~
~~p. 68~~

Geodrius vestitus Castelnau,
 Proc. Linn. Soc. New South Wales,
 vol. 3, pt. 4, p. 377, May 1879
 (type locality, Sydney).

Chilodactylus vittatus (not
Garrett) Macleay, Proc. Linn. Soc.
 New South Wales, vol. 5, p. 422,
 1881 (note). — Jenison - Wood,
 Fish. Fisher. New South Wales,
 p. 47, pl. 13, 1883.

With age a pair of horns on forehead and pair of bony tubercles on snout. Scales 63 in lateral line. D. XVII, 33, fin slightly notched, fourth and fifth spines elongate, former equal to length of head. A. III, 9. Simple pectoral rays moderate, longest reaching vent. Blackish longitudinal band between dorsal and lateral line. Immature specimens without horns or prolonged dorsal spines and have body and tail crossed by 7 or 8 blackish bands. (Günther.)

Western Australia, New South Wales, Queensland, Lord Howe Island.

414

Goniistius zonatus (Cuvier)

Cheilodactylus zonatus Cuvier,
Hist. Nat. Poiss., vol. 5, p. 365,
pl. 129, 1830 (type locality.

"mers du Japon") — Schlegel,
Fauna Japonica, Poiss., pts. 2-4,
p. 64, pl. 29, 1843 (Nagasaki Bay).
— Swainson, Nat. Hist. Animals,
vol. 2, p. 218, 1839 (on Cuvier).

— Richardson, Ichth. China and
Japan, p. 239, 1846 (Canton);
Proc. Zool. Soc. London, p. 66,
1850 (); Ann. Mag.
Nat. Hist., London, ser. ,
vol. 7, p. 282, 1851.

— Jordan and Snyder, Proc. U. S.
Nat. Mus., vol. 23, p. 358, 1900
(Tokyo), p. 752 (Yokohama;
Kiusiu; Hondo); Annot. Zool.
Japon., vol. 3, p. 84, 1901
(reference).

Chilodactylus zonatus Günther,
 Cat. Fish. Brit. Mus., vol. 2, p.
 82, 1860 (China; Japan). —
Steindachner and Döderlein,
 Denks. Akad. Wiss. Wien, vol. 48,
 math.-naturw. Kl., vol. 48, p. 26,
 1884 (Tokio; Yabapa).

— Nyström, Bih. Kon. Sv. Vet. Akad.
 Händl., Stockholm, vol. 13, afd.
 4, no. 4, p. 19, 1888 (Nagasaki).

— Ishikawa and Matsuura, Cat.
 Mus. Tokyo, Fishes, p. 52, 1897.

Goniistius zonatus Jordan and
Evere, Proc. U. S. Nat. Mus.,
 vol. 33, p. 164, fig. 3, 1907
 (Wakanoura; Tokyo; Misaki;
 Hakata; Nagasaki).
Gill, Proc. Acad. Nat. Sci. Philadelphia,
 p. 121, March 1862 (reference) —

— Jordan, Tanaka, Snyder, Journ.
 College Sci., Tokyo, vol. 33, art. 1, p.
 184, 1913 (reference).

Goni.

— Izuka and Matsuura, Cat. Zool.
 Spec. Tokyo Mus., Vert., p. 145,
 1920 (Tokyo market).

Chilodactylus quadricornis
Günther, Cat. Fish. Brit. Mus.,
 vol. 2, p. 83, 1860 (type locality,
 Japan).

Cheilodactylus quadricornis
Jordan and Snyder, Annot. Zool.
 Japon., vol. 3, p. 84, 1901 (reference).

Goniistius quadricornis Gill,
 Proc. Acad. Nat. Sci. Philadelphia,
 p. 121, March 1862 (reference).

Depth $2\frac{2}{3}$ to $2\frac{4}{5}$; head $3\frac{1}{5}$ to $3\frac{1}{4}$, width $1\frac{4}{5}$ to 2. Snout $2\frac{4}{5}$ to $2\frac{7}{8}$ in head; eye $4\frac{1}{4}$ to $4\frac{3}{4}$, $1\frac{1}{2}$ to $1\frac{3}{5}$ in snout, 1 to $1\frac{1}{8}$ in interorbital; maxillary reaches $\frac{3}{5}$ to $\frac{2}{3}$ to eye, length 4 in head; lips thick fleshy; band of fine teeth in each jaw, narrowing posteriorly; interorbital $3\frac{7}{8}$ to 4 in head, low; preopercle edge entire. Gill rakers 7 + 14, short points.

Scales 60 in lateral line; 9 above, 16 below. Scales small on head, none on muzzle. Small scales on pectoral and caudal bases. Low sheath of scales along bases of dorsals and anal.

D. XVII, 32, fourth spine $1\frac{3}{4}$ to $1\frac{4}{5}$ in head, first ray $2\frac{3}{4}$,

419

A. III, 8, third spine $3\frac{1}{5}$ to $3\frac{2}{5}$,
second ray $1\frac{1}{3}$; caudal $1\frac{1}{8}$ to $1\frac{1}{5}$,
forked; least depth of caudal
peduncle $3\frac{1}{5}$ to $3\frac{1}{4}$; pectoral
1, not quite reaching vent,
rays I, 6, V; ventral rays I, 5,
fin $1\frac{1}{2}$ in head.

Olive on back, paler to
whitish below. Nine parallel
oblique dark brown cross
bands, little narrower than
pale interspaces. First band
across eye, cheek and chest;
second from nape across opercle to
pectoral base; third to sixth
across back and sides to belly;
seventh to ninth joined along
lateral line and encircle body.
Dorsal brown. Caudal brown.
with about dozen large white
spots. Anal and ventral blackish.
Pectoral pale.

China, Japan.

420

Goniistius zebra (Steindachner
and Döderlein)

Chilodactylus zebra (Döderlein)
Steindachner and Döderlein,
Denks. Akad. Wiss. Wien, math.-
naturw. Kl., vol. 48, p. 27, 1884
(type locality, Tokio).

Goniistius zebra Jordan and
Herre, Proc. U. S. Nat. Mus., vol.
33, p. 166, 1907 (Yokohama,
Wakanoura).

— Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, art. 1, p.
184, 1913 (reference).

— Izuka and Matsura, Cat.
Zool. Spec. Tokyo Mus., Vert., p.
146, 1920 (Tokyo market).

423

Chilodactylus gibbosus (not
Richardson) Steindachner and
Döderlein, Denks. Akad. Wiss.
Wien, math.-naturw. Kl., vol. 48,
p. 27, ^{pl. 7, fig. 2,} 1884 (Tokio material).
— Nyström, Bih. K. Svensk. Vet.
Akad. Handl., Stockholm, vol. 13,
afd. 4, no. 4, p. 18, 1887 (Nagasaki).

Cheilodactylus gibbosus Jordan
and Snyder, Annot. Zool. Japon.,
vol. 3, p. 84, 1901 (reference).

Depth $2\frac{7}{8}$; head $3\frac{3}{5}$, snout $3\frac{1}{10}$ in head; eye $3\frac{9}{10}$, $1\frac{1}{4}$ in snout; maxillary reaches opposite front edge of eye, length $3\frac{4}{5}$ in head; lower jaw much shorter than upper; interorbital little over 4, low.

Scales 53 to 70 in lateral line; 9 or 10 above, 15 below. Scales in head all very small, close set, absent from muzzle. Small scales on chest, middle of breast and pectoral base. Dorsals and anals with low basal scaly sheaths, made up of small scales.

D. XVII, 29 to 36, fourth spine $1\frac{3}{4}$ in head, first ray $3\frac{1}{2}$; A. III, 8, third spine $3\frac{1}{8}$, second ray $1\frac{3}{5}$; caudal 1, forked; least depth of caudal peduncle $3\frac{1}{2}$; pectoral 3 in fish without caudal, lower

425

rays I, 7, VIII; ventral rays I, 5,
fin $1\frac{1}{2}$ in head.

Seven oblique black bands
on body, of which 3 on head
with second inclined over
pectoral base, while seventh
covers most of caudal peduncle
and lower lobe of caudal fin.

Fourth, fifth and sixth dark
band extend across ~~short~~ spinous
dorsal fin. Length 200 mm.

(Steindachner and Döderlein.)

Japan.

~~6 or 7 rays simple; ventral~~

426

~~Goniistius~~
Cheilodactylus vittatus (Garrett)

Cheilodactylus vittatus Garrett,
Proc. Cal. Acad. Sci., vol. 3, p. 103,
1864 (type locality, Hawaiian
Islands). — Jenkins, Bull. U. S.
Fish Comm., vol. 22, p. 489, 1902 (1903)
(Honolulu). — Jordan and Snyder,
Proc. U. S. Nat. Mus., vol. 28, p. 125,
1904 (Honolulu). — Jordan and
Evermann, Bull. U. S. Fish Comm.,
vol. 23, pt. 1, p. 447, pl. 54, 1903 (1905)
(Honolulu). — Fowler, Bull. Bishop
Mus., no. 22, p. 26, 1925 (Honolulu);
no. 38, p. 18, 1927 (Honolulu); Mem.
Bishop Mus., vol. 10, p. 236, pl. 21C,
1928 (Honolulu); Proc. Acad. Nat.
Sci. Philadelphia, p. 656, 1929 (1930)
(Honolulu).

1324
p. 227 (Diego Suarez, Mahambo and Ft.
Dauphin, Madagascar). — Johnstone,
Rep. Pearl Fisher. Manaar, vol. 2, 1914, p. 217
(south of Cheval Paar).

Siganus oramin Jordan and Seale, Proc. U. S.
Nat. Mus., vol. 28, 1905, p. 789 (Negros). —

Jordan and Richardson, Bull. Bur. Fisher,
vol. 27, 1907 (1908), p. 271 (Aparri and Cavite).

Amphacanthus dorsalis Valenciennes, Hist.

Nat. Poiss., vol. 10, 1835, p. ¹⁴³404. Batavia.

— Schlegel and Müller, Verhand. Nat. Ges.

Zool., 1839-44, pp. 10, 13, plate 2, fig. 1

(Batavia). — Bleeker, Nat. Tijds. Ned. Indie,

deel 3, 1852, p. 161 (Timor, Kupang), p. 235

(Amboina), p. 237 (Wahai), p. 546 (Amboina),

p. 690 (Wahai), p. 717 (Goessongassam); l.c.,

deel 4, 1853, p. 132 (Ternate), p. 596 (Halmahera);

l.c., deel 6, 1854, p. 375 (Anjer), p. 457

(Amboina); l.c., deel 7, 1854, p. 227 (Macassar),

p. 313 (Bantam, Anjer), p. 361 (Batjan);

Chilodactylus vittatus Günther,
Journ. Mus. Godeffroy, vol. 2-3,
pts. 5-6, p. 73, pl. 51, fig. B, 1874
(Hawaiian Islands). — Steindachner,
Denks. Akad. Wiss. Wien, math.-
naturw. Kl., vol. 70, p. 490, 1901
(Honolulu).

Gonistius vittatus Jordan and
Dickerson, Proc. U. S. Nat. Mus.,
vol. 34, p. 611, 1908 (Honolulu). —
Jordan and Jordan, Mem. Carnegie
Mus., vol. 10, no. 1, p. 53, Dec. 1933
(Honolulu).

1323

Siganus oramin (Schneider).

guttatus var.

Amphacanthus oramin Schneider, Syst. Ichth. Bloch, 1801, p. 207, plate 48. Trangrebar.

Amphacanthus oramin Weber, Siboga Exped., band 57, 1913, p. 329 (Flores and Obi major).

Xenthis oramin Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 318 (part; copied). — Day, Fishes of India, pt. 1, 1875, p. 168, plate 40, fig. 6. —

→ — Day, Fauna British India, vol. 2, 1889, p. 91, fig. 42 — Boulenger, Proc. Zool. Soc. London, 1887, p. 659 (Muscat). — Steindachner, Abhandl.

Senckenberg. Gesell., band 25, 1900, p. 425 (Patani River, Halmahera; Ternate). —

Pellegrin, Bull. Soc. Zool. France, vol. 30, 1905, p. 84 (Baie d'Alang, Tonkin). — Pellegrin,

Bull. Mus. Hist. Nat. Paris, vol. 13, 1907, p. 203 (Tulovar, Madagascar). — Regan, Ann.

Darwin Mus., 1908, p. 246 (Kosi Bay). —

Pellegrin, Bull. Soc. Zool. France, vol. 39, 1911.

Chilodactylus gibbosus (not
Richardson) Steindachner and
and Höderlein, Denks. Akad.
Wiss. Wien, math.-naturw.
Kl., vol. 48, p. 27, 1884 (part).

429

Depth $2\frac{2}{5}$ to $2\frac{3}{4}$; head $3\frac{1}{6}$ to $3\frac{1}{5}$, width $1\frac{4}{5}$ to $1\frac{5}{6}$. Snout $2\frac{4}{5}$ to $2\frac{7}{8}$ in head; eye $3\frac{1}{5}$ to $3\frac{1}{4}$, $1\frac{1}{8}$ to $1\frac{1}{5}$ in snout, 1 to $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{7}{8}$ to orbit; length $4\frac{1}{2}$ to $4\frac{3}{5}$ in head; interorbital $3\frac{2}{5}$ to $3\frac{1}{2}$, nearly level; preopercle edge entire. Gill rakers 6 + 14, short.

Scales 58 or 59 in lateral line to caudal base and 4 to 6 more on latter; 10 or 11 scales above, 15 to 17 below; 30 or 31 predorsal; 7 or 8 scales on cheek below eye to preopercular ridge and 3 more on flange. Rest of head behind eyes also covered with small scales. Scales on chest small, also on caudal base.

D. XVII or XVIII, 29, I or 30, I,
~~fourth~~ third spine $1\frac{1}{6}$ to $1\frac{1}{3}$ in head,
 first branched ray $2\frac{3}{4}$ to $3\frac{7}{8}$;
 A. III, 7 or III, 8, I, third spine
 $2\frac{1}{6}$ to 4, second branched
 ray $1\frac{2}{3}$ to 2; caudal 1 to $1\frac{1}{8}$,
 deeply forked; least depth
 of caudal peduncle $3\frac{4}{5}$ to 4;
 pectoral 1, rays II, 4, VII;
 ventral rays I, 5, fin $1\frac{1}{2}$ to
 $1\frac{3}{5}$ in head.

Very pale gray to gray
 white with 5 broad, oblique,
 strongly contrasted bands of
 blackish brown to blackish;
 first over cheek, second from
 lower hind eye edge toward
 subopercle; third from supra-
 occipital to suprascapula and
 pectoral base; fourth from
 spinous dorsal origin to behind

ventral and to vent, broadening below; fifth extends from upper half of spinous dorsal down along below soft dorsal to caudal peduncle, ^{and down over lower caudal lobe.} Two dark bars across interorbital. Soft dorsal and anal yellowish. Caudal grayish, darker behind and tips of lobes blackish. Pectoral brown, red in life. Ventral black.

Hawaiian Islands. I have studied eight examples, all obtained in Honolulu and originally in the Bishop Museum. the largest 355 mm. long.

432

Goniistius ephippium (McCulloch and Waite)

Cheilodactylus (Goniistius)
ephippium McCulloch and Waite,
Trans. Roy. Soc. South Australia,
vol. 40, p. 445, ~~44~~ pl. 43, fig. 2,
1916 (type locality, Lord Howe
Island; Norfolk Island).

Depth $2\frac{3}{5}$ to $2\frac{9}{10}$; head 3 to $3\frac{2}{5}$.
Snout $2\frac{4}{7}$ in head; eye $4\frac{1}{5}$,
 $1\frac{3}{5}$ in snout; maxillary reaches
 $\frac{2}{3}$ to eye, length 4 in head;
lower jaw shorter, lips thick;
band of small, cardiform,
depressible teeth in each jaw,
none on palate; interorbital
slightly less than eye, low;
preopercle entire; bony tubercle
each side of front of snout and
one before each eye.

Scales 62 to 64 in lateral
line; 9 above, 19 below. Scales
very small on head and breast,
above extend forward between
nostrils. Low scaly sheaths along
bases of dorsals and anals. ~~I~~
Caudal and pectoral with small
scales basally.

D. XVII, 32 or 33, fourth spine

$2\frac{3}{4}$ in head, first ray $3\frac{7}{8}$; A. III, 8, second spine $2\frac{4}{5}$, second ray $1\frac{4}{7}$; caudal $1\frac{1}{4}$, forked; least depth of caudal peduncle $4\frac{1}{2}$; pectoral $1\frac{1}{8}$, rays II, 6, VI; ventral rays I, 5, fin $1\frac{3}{5}$ in head.

Light brown, with oblique darker cross bands. An indefinite dark bar across nape to behind opercle; second broad band obliquely back from first third of spinous dorsal to middle of side; third band covers greater part of remainder of back, enclosing 3 large light spots below the soft dorsal. Blackish mark surrounds eye and extends forward on snout. Sides of head with dark reticulating lines enclosing lighter spots. Breast and caudal with obscure grayish ocelli. Spinous dorsal blackish, soft

435

fin with median lighter band.
Anals and paired fins blackish.
Length 348 mm. to end of middle
caudal rays. (McCulloch and Waite)

Lord Howe Island, Norfolk
Island.

Genus Dactylophora de Vis

Dactylophora de Vis, Proc. Linn.
Soc. New South Wales, vol. 8,
~~pt. 4, p. 439, Feb. 21, 1884.~~
~~(Type pt. 2, p. 284, July 17,~~
1883. (Type Dactylophora
semimaculata de Vis,
monotypic.) (dactylophorus
~~Psilocr.~~ Swainson 1839 not
involved.)

Psilocranium Macleay, Proc.
Linn. Soc. New South Wales,
vol. 8, pt. 4, p. 139, Feb. 21, 1884.
(Type Psilocranium coxii
Macleay, monotypic.)

Upper teeth in a lunate patch
of several series, lower
uniserial. Preorbital and
preopercle entire. Branchio-
gals 4. Scales moderate, cycloid.
Cheeks naked. One dorsal with
16 spines and 24 rays. Anal
short, with 3 spines and 10
rays. Caudal forked. One
of the simple pectoral rays
elongate, reaches anal.

438

Dactylophora nigricans (Richardson)

Cheilodactylus
Dactylophora nigricans Richardson,
Proc. Zool. Soc. London, vol. 18,
p. 63, Nov. 12, 1850 (type locality,
King George & Sound, Western
Australia); Ann. Mag. Nat.
Hist., London, vol. 7, p. 279,
1851.

Chilodactylus nigricans Günther,
Cat. Fish. Brit. Mus., vol. 2, p.
79, 1860 (reference). — Gill,
Proc. Acad. Nat. Sci. Philadelphia,
p. 118, March 1862 (reference).
— Macleay, Proc. Linn. Soc. New South
Wales, vol. 5, p. 423, 1881 (copied).

— Waite, Rec. Austral. Mus.
vol. 6, pt. 2, p. 63, Sep. 15, 1905
(Houtman's Abrolhos).

Haplodactylus punctatus
(not Valenciennes) Günther, Cat.
Fish. Brit. Mus., vol. 8, p. 434,
1859 (part). — Delfin, Cat.
Peces de Chile, p. 71, 1901
(part).

Dactylophora nigricans McCulloch, Fish. New South Wales,
ed. 3, p. 68, pl. 29, fig. 247a,
1934.

Psilocranium nigricans McCulloch, Austral. Mus. Mem.,
No. 5, pt. 2, p. 259, Sep. 10, 1929
(reference).

442
Chilodactylus nebulosus

Klunzinger, Archiv Naturg., vol.
38, pt. 1, p. 26, 1872 (type
locality, "Queenscliff" [=
Victoria]).

Chilodactylus mulhallyi Macleay,
Proc. Linn. Soc. New South Wales,
vol. 7, pt. 3, p. 366, Oct. 28, 1882
(type locality, Sydney markets).

443

Dactylophora semimaculata de
Vis, Proc. Linn. Soc. New South
Wales, vol. 8, pt. 2, p. 284, July 17,
1883 (type locality, South
Australia).

Psilocranium coxii Macleay,
Proc. Linn. Soc. New South Wales,
vol. 8, pt. 4, p. 440, pl. 22, Feb. 21,
1884 (type locality, Watson's
Bay, Port Jackson).

Scales 48 in lateral line.

D. XV, 26, sixth spine longest, equals $\frac{1}{3}$ body depth and higher than soft rays, which rise considerably above posterior spines. A. III, 10.

Pectoral with 5 simple rays, uppermost longest and projects only about $\frac{1}{6}$ its length beyond membrane. Uniform blackish gray. (Richardson.)

Western Australia, South Australia, Victoria, New South Wales, Tasmania.

445

Genus Hemadactylus Richardson

Hemadactylus Richardson, Proc.
Zool. Soc. London, vol. 7, p. 97,
Nov. 1939. (Type Hemadactylus
concinus Richardson, monotypic.)

Hematodactylus Gill, Proc. Acad.
Nat. Sci. Philadelphia, p. 121,
March 1862. (Type Hemadactylus
concinus Richardson.)

Hemodactylus Macleay, Proc.
Linn. Soc. New South Wales, vol. 5,
p. 425, 1881. (Type Hemadactylus
concinus Richardson) (error.)

Body robust, fusiform, highest behind ventral fins. Head rather small, profiles above and below slightly curved to snout. Eyes mostly advanced, on or scarcely impinging on upper profile. Teeth ~~iserial~~ in each jaw. Opercle unarmed. Preopercle nearly vertical behind. Branchiostegals 3. Scales thin, moderate. Crown and forehead scaly; cheeks and opercle naked. Dorsals nearly equally divided, first fin convex with 17 spines, last of which lower than second fin. Anal oblong, with 3 moderate spines and 15 gradually decreasing rays. Pectoral with one simple ray extended beyond rest.

Hemadactylus concinnus Richardson

Hemadactylus concinnus Richardson,

Proc. Zool. Soc. London, vol. 7, pp.

97, 116, pl. 4, fig. 2, Nov. 1839

(type locality, Port Arthur,
Tasmania); ~~Richardson~~ Trans.

Zool. Soc. London, vol. 3, p. 116, pl.

4, fig. 2, 18

— Günther, Cat. Fish. Brit. Mus.,

vol. 2, p. 85, 1860 (copied). —

Macleay, Proc. Linn. Soc. New South

Wales, vol. 5, p. 425, 1881 (copied).

— McCulloch, Austral. Mus. Mem.,

No. 5, pt. 2, p. 257, Sep. 10, 1929

(reference).

hematodactylus concinus
Gill, Proc. Acad. Nat. Sci.
Philadelphia, p. 122, March
1862 (reference).

Scales 50 in lateral line.

449

Dorsal XVII, 28. A. III, 15. Largest
simple pectoral ray projects
nearly $\frac{1}{4}$ its length beyond
membrane. Coloration uniform.
(Richardson)

Yasmania.